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ABSTRACT

Twenty randomly selected subjects in inner city schools at grades 2, 5, 8, and 11 participated in a study that examined whether (1) the number of cohesive units produced in writing will be greater for older students than for younger subjects; (2) the use of cohesive ties in consecutive sentences (a measure of awareness of audience) will increase with age of subjects; and (3) the subjects will signal "given" information with appropriate uses of the definite article. Subjects were asked to write on three different writing tasks (narration, argument, and description) over three 45-minute writing sessions. Each of the 240 writing products was then scored for number of T-units, number of cohesive ties per T-unit, number of cohesive ties per T-unit in consecutive sentences, and the number of exophoric uses of the definite article. Results showed no significant differences in the number of cohesive ties per T-unit over the four grade levels. There was, however, a statistically significant linear relationship between grade level and cohesive ties per T-unit. Eighth grade subjects produced significantly fewer exophoric uses of the definite article than did the fifth grade subjects, while eleventh grade subjects produced significantly more than did eighth grade subjects. Further analysis of 11th grade writing products showed that they used the definite article as a rhetorical device, creating an effect of immediacy and involvement by introducing the reader to the character and the action of the story "in media res." (Author/HOD)

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Developmental Trends in the Use of Cues for Establishing the Identity of Referents in Written Discourse

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Developmental Trends in the Use of Cues

Abstract

Begins with a discussion of the role of cohesive units in comprehension, followed by an analysis of the association between anaphora and comprehension. The role of definite and indefinite articles in establishing given/new distinctions is developed. Proposes three hypotheses; 1) the number of cohesive units produced in writing will be greater for older subjects than for younger subjects, 2) the use of cohesive ties in consecutive sentences (a measure of awareness of audience) will increase with age of subjects, and 3) subjects will signal "given" information with appropriate uses of the definite article. Twenty randomly selected subjects in inner-city schools at grades 2, 5, 8, and 11 wrote three different writing tasks over three 45 minute writing sessions, including narration, argument, and description. Each of the 240 writing products was scored for number of T-units, number of cohesive ties per T-unit, number of cohesive ties per T-unit in consecutive sentences, and the number of exophoric uses of the definite article. Results showed that there were no significant differences in the number of cohesive ties per T-unit over the four grade levels. There was, however, a statistically siginificant linear relationship between grade level and cohesive ties per T-unit. In addition, there were no significant differences in the production of cohesive ties per T-unit in consecutive sentences but there was a significant linear

relationship between age of subject and production of cohesive ties per T-unit in consecutive sentences. Eighth grade subjects produced significantly fewer exophoric uses of the definite article than did the fifth grade subjects, while 11th grade subjects produced significantly more than did 8th grade subjects. There was a statistically significant negative linear relationship between age of subjects and production of exophoric uses of the definite article. Further analysis of 11th grade writing products showed they used the definite article in a more sophisticated way than subjects at the other grade levels. Older subjects used the definite article as a rhetorical device, creating an effect of immediacy and involvement by introducing the reader to the character and the action of the story "in media res." Concludes with the suggestion that differences in cohesive ties per T-unit, cohesive ties in consecutive sentences, and the exophoric use of the definite article should be investigated where audience is specified to subjects.

Developmental Trends in the Use of Cues for Establishing the Identity of Referents in Written Discourse

A reader comes to understand text by processing a variety of graphic, grammatical, semantic, and, rhetorical cues. Cohesive ties are discourse level cues representing a set of semantic resources shared by a reader and a writer which depend on shared conventionalized expectations and knowledge of the manner in which our language conveys meaning. In some cases, they signal relationships that allow comprehension when elements are not explicitly lexicalized. Such devices enable readers to fill in material that has been left out of a text. For example, in the sentences "John usually talks all the time in class. Today he didn't," a reader understands the meaning of the second sentence without the explicit repetition of the phrase "Today John didn't talk." Cohesive devices can also signal that items in a text are co-referential as in, "John came into the room. He saw a box" (anaphora). They can also point forward in a text (cataphora), enabling readers to form expectations about what will come next, (e.g., "This is what I like. Mother always makes cookies on Friday"). Cohesive devices allow readers to follow the pathway of ideas through text, like following the links in a chain. Apart from intentional violations for particular rhetorical purposes, writers with a well developed sense of the needs of their audience strive to meet the expectations of their readers in their use of cohesive devices.

Cohesion is achieved when an author provides enough lexical and grammatical forms to produce perceivable textual unity. Halliday & Hasan (1976) have analyzed five major types of relationships: conjunction, lexical, substitution, ellipsis, and referential. A brief synopsis of the cohesion categories is shown in Table 1.

Insert Table 1 about here

Cohesive devices aid in the production of inferences from text. Inferences are necessary because they are the mechanisms for integrating the meaning of groups of sentences. Thorndyke (1976), for instance, suggests that the production of inferences is important in the comprehension of prose passages because they allow "...the integration of sentences into a larger framework incorporating implicit causal, temporal, and motivational information" (Thorndyke, 1976, p. 444). When cohesive devices are properly constructed, they allow the integration of information from antecedent to referent, hence aiding inference. Indeed, a clearly identified referent appears to reflect the underlying structure of the text (Carpenter & Just, 1977; de Villiers, 1974; Kintsch, 1974). If referents are not clearly identified comprehension is adversely affected (Haviland & Clark, 1974).

The ability to cope with anaphoric reference is of vital importance in reading (Kingston, 1977). It has also been shown that school-aged subjects have difficulty comprehending anaphoric forms (Bormuth, Manning, Carr, and Pearson, 1970; Chai, 1967; Lesgold, 1974; Richek, 1976-1977). Chapman (1979) gave subjects fourteen stories that had words deleted. Two cloze versions of each of the 14 stories were prepared so that the first had only pronouns deleted and the second had words that "were not performing an anaphoric function" deleted. He found that anaphoric scores were significantly higher than non-anaphoric scores and that fluent readers had significantly higher scores than nonfluent readers. Chapman concludes that the ability to understand anaphoric reference is a significant factor in the development of mature, fluent, reading. Further, Fishman suggests that "Among the grammatical means of expressing cohesion, anaphoric reference is primary (Fishman, 1978, p. 160).

It is our view, that writers who are sensitive to the needs of their readers will provide sufficient cohesive ties to produce perceived text unity, and it is suggested that as writers mature, they will tend to use more cohesive ties. It is predicted that older subjects will use more cohesive devices per T-unit (we will consider this to be a measure of sensitivity to needs of audience) than will younger subjects.

A reader relies on a basic assumption that the author of a text wants him/her to understand what has been written and

provides substantial enough information for understanding to take place. An essential part of this "contract" beween reader and writer depends on the writer's sense of how to convey what is "given" in a text and what is "new" in order to meet the needs of his reader. The reader assumes that any "new" information will be presented or introduced in some fashion. Violations of the given-new contract on the part of the author may affect comprehension on the part of the reader.

Yekovich, Walker, and Blackman (1979) suggest the given-new strategy is encoded into memory in three stages; 1) the incoming sentence is decomposed into its respective given and new components, 2) memory is searched for antecedents to the current given information, and 3) the new information is integrated if there is an antecedent. Given-new strategies are tested using a comprehension paradigm involving the presentation of two sentences, a context sentence and a target sentence. Comprehension time of the target is related to the presence or absence of antecedent information in the context sentence (Haviland & Clark, 1974; Yekovich & Walker, 1978; Yekovich, Walker, & Blackman, 1979).

When information is given in a text there must be some kind of antecedent in the reader's mind for understanding to take place. When it is not probable that a reader has the antecedent the author must provide it. One indication of the degree to which an author is maintaining a given-new "contract" is the

introduction of information and its elaboration through the use of anaphora.

Another indication of the degree to which an author is exhibiting an awareness of audience may be his conforming to the given/new contract in the use of the definite article. Halliday and Hasan (1976) describe the use of the definite article as being either "situational" or "textual." The situational use of the definite article is exophoric (the information necessary to identify the referent is recoverable from the situation or shared knowledge as in, "The children are eating dinner). Homophoric uses of the definite article occur when the reference is to entities which are identifiable regardless of the immediate situation as in, "The president gave a speech." Textual uses occur when items in a text are co-referential.

Textual use of the definite article can be cataphoric or anaphoric (see above discussion). Cataphoric use of the definite article occurs when identity is established by postmodification in the nominal group while anaphoric use occurs when identity has been established through earlier mention.

Table 2 about here

One function of the English articles "a" and "the" is to contrast things that can be identified by one's audience with things that one's audience is not expected to identify. For

example, if one writes or says "a boy came into the school," the expectation that one's audience will think of a particular boy is not being made, on the other hand, the use of the definite article in reference to "the school" indicates an assumption that a particular school is being identified. The use of the definite article indicates that either the writer or speaker is assuming that the audience already knows the school, or that the audience can retrieve the information from previous discourse. Obviously, this is different than the utterance, "a boy came into a school." The most common pattern in English is for persons or objects to be introduced with the indefinite article "a" so that the first mention in a written text for a general audience would ordinarily be "a boy." Subsequently he would be referred to as "the boy," since reader and writer by then understand which boy is meant by the phrase, "the boy." A measure of audience awareness can be obtained by counting the number of proper given/new uses of the and a in student compositions.

There is substantial evidence suggesting that readers expect the information given in sentences to be related or linked to what comes immediately before. When readers encounter the second of two related facts, the probability of connecting the second to the first is greatly increased if the referent is readily available in memory, and facts are going to be readily available if they occur in consecutive sentences. For example, if one reads the sentences;

I like friendly people.

John is a friendly person.

it is more likely that an integration of the whole in memory will result in the inference that John is a friendly person whom the author likes if the sentences follow each other in text. One measure of sensitivity to the expectations of readers would be, then, the number of cohesive ties per T-unit in successive sentences. It is predicted that more mature writers will produce more cohesive ties per T-unit in successive sentences than less mature writers.

Three hypotheses will be proposed and tested in this study; 1) does the number of cohesive devices used increase with age, 2) does the use of cohesive ties in consecutive sentences increase with age, and 3) do subjects use the definite article to signal "given" information appropriately, and if so, in what contexts is it used?

Method

Subjects

Subjects were selected from a large metropolitan school district in the Western United States. Classrooms were selected randomly from three high schools, four middle schools, and ten elementary schools at grades 2, 5, 8, and 11. Order of writing tasks was random for classrooms. Schools were typical "inner-city" schools and the sample was representative of them.

Writing Tasks

Subjects at all grade levels wrote three compositions, each within a forty minute class period. The three writing assignments were: 1) "We all know someone who is special. People can be special or important in many different ways. Please describe a person who is special to you," 2)"Pretend your very best friend has just started smoking for the first time and you have decided to write him or her a letter. Since you know smoking is not good for your friend, you must try to get her or him to stop. You are going to do this by writing a letter," and 3) "Look carefully at the three pictures. Please write a story about these three pictures. Tell what is going on in each picture. Remember, the three pictures go together to make one story.

Scoring

Each of the 240 written products was scored for number of T-units (basically an independent predication with its attached modifiers), the number of cohesive ties per T-unit, the number of cohesive ties per T-unit in consecutive sentences, and the number of exophoric uses of the definite article.

Results

The number of cohesive ties per T-unit varied from a mean of 2.38 for second grade subjects to a mean of 2.87 for 11th grade subjects. The mean number of cohesive ties per T-unit used in

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[1] Writing stimulus can be seen in the appendix.

consecutive sentences ranged from a mean of 1.01 for second grade subjects to 1.32 for 11th grade subjects. The mean number of exophoric uses of the definite article varied from a mean of .01 for 8th grade subjects to a mean of .08 for second grade subjects. These descriptive statistics are shown in Table 3.

Table 3 about here

Four planned comparisons were made of the grade means for cohesive ties per T-unit. As shown in Table 4, there were no significant grade differences. However, there was a statistically significant linear relationship. The number of cohesive ties per T-unit increased as grade level increased.

Table 4 about here

Four planned comparisons were made of the grade means of the number of cohesive ties per T-unit produced in consecutive sentences. Again, there were no significant grade differences, but there was a significant linear relationship between grade and production of cohesive ties per T-unit in consecutive sentences. These contrasts are shown in Table 5.

Place Table 5 about here

Four planned comparison were made using the Welch-Aspin t-test for grade means of exophoric uses of the definite article. Significant differences were found. Eighth grade subjects produced significantly fewer exophoric uses of the definite article than did 5th grade subjects. In addition, 11th grade subjects produced significantly higher numbers of exophoric uses of the definite article than did 8th grade subjects. Second and fifth grade means were not significantly different although the second grade subjects did produce a higher mean number. There was a significant negative linear relationship between grade and the number of exophoric definite articles produced. These comparisons can be seen in Table 6.

Table 6 about here

Findings

The number of cohesive ties per T-unit was higher for older subjects than it was for younger subjects. As writers mature they appear to be more sensitive to the necessity of producing cohesive text than younger writers. Notice in Table 7 that the identity of the person being talked about is maintained through use of 3rd person pronouns, e.g., she is nice and kind (5th grade) - while the identity of the author is maintained through the use of 1st person pronouns, e.g. my mom is special to (5th grade). Cohesive ties and situational reference are used to

maintain distinctions between who is doing the talking and what is being talked about.

Table 7 about here

Written compositions, like oral texts, have an outer context of situation. The first and second person pronouns in these compositions, the "I" and "you" the "my" and the "me" refer to the author and are thus considered reference to the context of the situation.

The youngest subjects in the study produced descriptions that listed several people and depended more on reference to the context of the situation than did the older subjects. The older subjects, on the other hand, tended to pick one person and elaborate on why that person was special. In addition, older subjects used more lexical ties in the form of repetition, synonyms, near-synonyms, and superordinates. Lexical relationships are shown in Table 7 by the dotted lines between boxes, while the referential relationships are shown by the solid lines between boxes.

Results of this study also indicate a gradual increase in the number of cohesive ties used in consecutive T-units. This suggests that as subjects mature in their writing ability they try to make relationships clearer to their readers by putting related ideas in consecutive sentences, and by signaling the

relationship between these ideas through the use of cohesive ties.

Table 8 shows some examples of the way subjects used the definite article in responding to the assignment in which they were asked to write a story about three pictures. The youngest writers, i.e. the second graders, used the definite article in a way that indicates they expected the reader to be sharing the context of the situation, that is, they wrote as if the reader were present - as if they expected the reader to be able to see the pictures and be able to identify the reference that was being made in the written text. In addition, and as a result of their point of view, second graders used the present tense in contrast to the narrative past which is normally appropriate for a story. They also used the pronoun he in much the same way as they used the definite article. To understand how unusual a phenomenon this is in written text, one might imagine picking up a scrap of paper on the street, and reading the sentence, "He picked up the box."

Table 8 about here

In grades 5 and 8, the use of the definite article becomes mixed with more frequent use of the indefinite article. In other words, subjects begin to write as if the objects and persons in their stories are new to their readers and, therefore, have to be

introduced with an initial use of the indefinite article, a. Overall there was a decrease in the frequency with which subjects used the definite article to refer to persons or objects that had not been previously introduced in the text.

In the 11th grade, however, there was a significant reversal of this trend. On the surface, it may look as though subjects were reverting to the pattern of younger students using the definite article to refer to something in the context of the situation shared by writer and reader. Actually, these subjects were using the definite article in a more sophisticated way. The first 2 sentences of the 11th grade sample in Table 8, for example, show subjects using the definite article in quoted speech or thought. The quotation marks are omitted, but the sentences can be best understood if we realize that the student writers intend them to be direct quotations. In the first sentence, for example, the mother knows which box of meat she is referring to and so can legitimately say "the box." In the second sentence we can assume Dan is thinking about a particular box that is in his field of vision. Both of these are examples of a proper use of the definite article.

Besides using quoted speech or thought, older writers appear to use the definite article to intentionally plunge their readers into a fictional scene. In sentence 3, for example, the scene unfolds in a particular room known to the character that is furnished with familiar objects. In this setting, referring to

the box on the table as "a box" would signal that it is new to the character. For readers who are aware of the conventions of language used in creating fiction, this use of the definite article to refer to the context of an unknown is appropriate. In the writing of the older students this use of the definite article to establish a fictional scene tends to co-occur with the use of the narrative past tense, conventionalized story openers ("one day"), and the use of proper names to identify characters.

Across the grade levels in this study there was a shift from talking about something directly to a reader to creating a fictional story for a reader. In both cases the writer must be aware of the needs of his audience for available information and appropriate signals. In other words, appropriate use of the articles for signalling given and "new" information depends upon knowledge of how they function in pragmatically different sorts of text. In texts where reference is being made to "real" situations, the identity of the referent must be available. In fictional texts, on the other hand, "the context of situation includes a 'context of reference' a fiction that is to be constructed from the text itself" (Halliday & Hasan, 1977). Older subjects in the study attempted a more sophisticated task than the younger subjects. Indeed, the interpretation of the task was different according to grade level of subject.

Conclusion

Findings of this study suggest that a student's sense of audience awareness develops as he/she matures as a writer. This sense of audience awareness is seen in an increasing production of cohesive devices and in appropriate uses of the definite article in increasingly sophisticated tasks. Older subjects not only use more cohesive devices, but they use them in increasingly complex ways.

Results of this study have shown that the degree to which students are aware of the needs of their audience can be judged, in part, by the number of cohesive devices produced in consecutive T-units and by uses of the definite article. Past studies have shown that syntactic complexity varies according to students' understanding of intended audience in speech (Cazden, 1970; Jensen, 1973) and in writing (Crowhurst and Piche, 1979; Robinson, 1965; Rubin and Piche, 1979; Smith and Swan, 1978). Results of this study suggest that further research should be conducted into the use of cohesive devices in consecutive T-units and the definite article where audience is specified. The present study asked subjects to write for a "pretend" audience. Indeed, most school assignments require students to write for two audiences at once, the audience specified (or not specified as the case may be) and the unspecified audience - the teacher. Further studies should be directed toward observing the use of a variety of cohesive devices according to differing audience

specifications in a variety of writing tasks.

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APPENDIX

1. The three stimulus pictures used for the narration task.

Table 1

Types of Cohesive Ties (Halliday and Hasan, 1976)

1. Conjunction: A man opened the door. Then he looked in the box.

   a) additive: and, or, in other words, likewise, etc.
   b) adversative: yet, but, however, instead, etc.
   c) causal: so, consequently, because, etc.
   d) temporal: then, next, after that, finally, etc.
   e) continuative: of course, after all, anyway, etc.

2. Lexical: A boy walked into the room. The boy saw a box.

   a) repetition: A boy... The boy...
   b) synonym or near synonym: A boy... The lad...
   c) superordinate: A boy... The child
   d) general: A box... The thing...
   e) collocation: (the use of a lexical item that regularly co-occurs with a previously used lexical item) north/south/, day/night, wet/dry, reader/writer, etc.

3. Substitution: My mother made cakes for the party. I liked the chocolate one.

4. Ellipsis: He usually talks all the time in class. Today he didn't (talk all the time in class).

5. Referential: A boy walked into the room. He saw a box.

   a) pronominal: A boy... He...
   b) demonstrative: A boy... The boy; Some boxes... Those boxes.
   c) comparative: The box... The same box, a different box... a better box.
   d) endophoric: (reference within the text)

      1) anaphoric: (backward reference)

      Mother always makes cookies on Friday. This is what I like.

      2) cataphoric: (forward reference)

      This is what I like: Mother always makes cookies on Friday.

   e) exophoric: (situational reference)

      e.g. "That toy is mine." (indicating a specific toy in the vicinity of the child who is speaking.)

Table 2

Use of the Definite Article (Halliday and Hasan, 1976)

Situational

I. Exophoric (where the information necessary for identifying the referent is recoverable from the situation), e.g., The children are eating dinner.

II. Homophoric (where the reference is to entities which are identifiable regardless of the situation), i.e., cases where

a) a single member in the class exists: "The sun"
b) the identity of the member of the class will be assumed: "The baby" = our baby "The time" = now
c) the reference is to the entire class: "The stars"
d) the individual is viewed as a representative of the whole class: "As the child grows, he learns to be independent."

Note: Elements of a schema may also be referred to with the definite article once the schema (or a part of it) has been introduced: e.g. A restaurant... The menu. A waiter gave us a menu. The restaurant was pleasant.

Textual

I. Cataphoric (when identity is established by postmodification in the nominal group) "The man who came in the door..." "The best way to win..."

II. Anaphoric (when identity has been established by an earlier mention) "A boy looked in a box. The box had test papers in it."

Table 3

Means and Standard Deviations of the Number of Cohesive Ties Per T-unit, Cohesive ties per T-unit in Succesive Sentences, and Exophoric Uses of the Definite Article

Grade	CT*	S^2	CTS**	S^2	EXD***	S^2	N
2	2.38	.08	1.01	.26	.08	.0028	20
5	2.55	.09	1.18	.21	.05	.0021	20
8	2.74	.01	1.21	.10	.01	.0002	20
11	2.87	.08	1.32	.19	.03	.0004	20

*Cohesive Ties per T-unit
**Cohesive Ties per T-unit in Consecutive Sentences
***Exophoric Use of the Definite Article

Table 4

Planned Contrasts Between

Grades Using the t-Test

Contrast	$\hat{\Psi}$	SE $\hat{\Psi}$	T-Value	DF
linear	1.66	.43	3.84	76*
2 vs 5	-.17	.14	-1.24	76
5 vs 8	-.19	.14	-1.37	76
8 vs 11	-.13	.14	- .97	76

* Significant ($P < .0125$)

Table 5

Planned Contrasts Between Grades Using the t-Test

Contrast	$\hat{\Psi}$	SE $\hat{\Psi}$	T-Value	DF
linear	.69	.26	2.72	76*
2 vs 5	-.08	.08	-.98	76
5 vs 8	-.04	.08	-.43	76
8 vs 11	-.11	.08	-1.32	76

*Significant ($p < .0125$)

Table 6

Planned Contrasts Between Grades Using the Welch-Aspin t-Test

Contrast	$\hat{\Psi}$	SE $\hat{\Psi}$	T-Value	DF
linear	-2.00	.04	-5.08	28*
2 vs 5	.03	.02	1.87	37
5 vs 8	.04	.01	3.74	23*
8 vs 11	.02	.01	-2.83	36*

*Significant ($p < .0125$)

Table 7

Student Uses of Cohesive Ties and Situational References

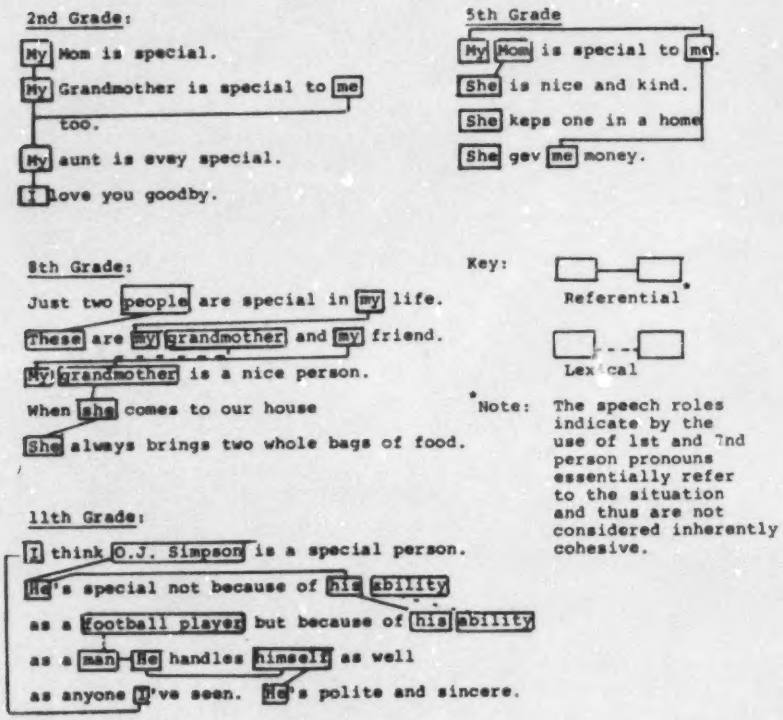
2nd Grade:
My Mom is special.
My Grandmother is special to me too.
My aunt is svey special.
I love you goodby.
5th Grade
My Mom is special to me.
She is nice and kind.
She keps one in a home
She gev me money.
8th Grade:
Just two people are special in my life.
These are my grandmother and my friend.
My grandmother is a nice person.
When she comes to our house
She always brings two whole bags of food.
11th Grade:
I think O.J. Simpson is a special person.
He's special not because of his ability
as a football player but because of his ability
as a man. He handles himself as well
as anyone I've seen. He's polite and sincere.
Key:
Referential
Lexical
*Note: The speech roles indicate by the use of 1st and 2nd person pronouns essentially refer to the situation and thus are not considered inherently cohesive.

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Table 8

Uses of the Definite Article

Grade 2:

1. He is coming into the room and he is opening the box.
2. The man come in he open the box he take the box in the room.
3. The man is come in the room he look in the box.

Grade 5:

1. A boy walks in the room.
2. The boy walk in the house and he saw a big white box on a table.
3. One day there was a man he was going to the table where the box is at.

Grade 8:

1. When he got inside the room he saw a box on a table.
2. On Monday morning, Jimmy saw a box on the table.
3. This boy came into the room. There was a box on a table.

Grade 11:

1. A boy who was in his mother's room, they were having a nice talk. Then she askes her son to go look in the living room and see if your father has bought the big box full of meat.
2. Dan come into the room. Knowbody was there. He was thinking what's in the box he opened it carefully.
3. One September morning, As Jim was walking into the living room He noticed a box was on the table.